

Running head: AFTER THE DISASTER: RESOURCE PRIORITIZATION

After the Disaster: Resource Prioritization

For Community Recovery In The

Clark County Fire Department

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CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of other is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed: _____

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Abstract

The operational impact of large-scale events have proved challenging for the Clark County Fire Department (CCFD). Past incidents were all confined to small geographic areas. Should a wide spread disaster occur, resource allocation would become critical. The problem is that there is no procedure in the CCFD to address response to such an incident. The purpose is to develop a “best practices” approach using the evaluative research method, and personal interviews to identify how initial damage assessment and resource deployment benefit communities, how other agencies identify “high risk” vulnerabilities, how other agencies conduct initial damage assessments, and what are the “high risk” vulnerabilities in Clark County and how they are addressed. The research resulted in recommendations for operational policies to address deficiencies for safe and effective resource allocation after a disaster.

Introduction

Clark County is the fastest growing county in country. Named after railroad promoter William Andrews Clark, Clark County is undergoing unimaginable changes. Encompassing an area larger than the state of New Jersey, Clark County was very slow to grow until the great depression, when government projects began its enlargement (MJHMP, 2005).

The Clark County Fire Department (CCFD) is no stranger to disaster. The impact of the MGM and Hilton resulted in a large loss of lives, and billions in litigation. These disasters were only months apart, but had incredible impact not only on the CCFD, but also in building codes and high-rise life safety initiatives. Clark County has experienced a large rocket fuel plant explosion at the Pacific Engineering Company, which shook the valley registering 3.5 on seismographs in California (Routley, 1988). In 1991 a Major Hazardous Material (Hazmat) incident occurred when 70 tons of chlorine leaked from a plant near Henderson, Nevada (Routley 1991). Floods has also overwhelmed Clark County on several occasions, causing millions is damage.

Clark County is also dealing with two major strategic issues. The first is the potential of a large amount of radioactive waste traversing through the metro area en route to Yucca Mountain, the proposed storage site for such waste. Our second issue is being identified as a potential target threat for Weapons of Mass Destruction. September 11, 2001, reminded us that no one is immune to disaster. Efforts to prepare for disaster mitigation will be essential to the rapid recovery after an incident.

The problem is that should a major event occur the CCFD has no formal procedure to direct resources in the initial stages of a disaster, thus leaving the potential for inefficient resource

allocation and deployment in the wake of a disaster. This places the community and its citizens at an increased potential for loss of life and can unnecessarily delay the initial recovery efforts.

The purpose of this applied research project (ARP) is to streamline the role that CCFD has within the county organization during a disaster by using a “best practices” approach to develop recommendations for standard operating procedures (SOP’s) for initial damage assessment of and deployment to "high risk" vulnerabilities within Clark County after a disaster. The evaluative method of research will be used in this ARP and will involve review of published literature, regional and local evaluation utilizing feedback instruments, and a personal interview to answer the following questions.

How does initial damage assessment and resource deployment benefit communities in the wake of a natural or man-made disaster?

How do other agencies identify specific “high risk” vulnerabilities within their individual response districts?

What procedures do other agencies use to conduct initial damage assessments after a disaster on order to efficiently deploy resources to the emergency?

What are the “high risk” vulnerabilities in Clark County and how are they addressed?

Background and Significance

Clark County is in the southern part of Nevada which borders California to the west and Arizona to the south and east. This high-desert region has a wide temperature range which can hit 115 degrees in the summer and low 20s in the winter. Years of drought can result in unusual, floods during the occasional summer storm. Clark County has grown into a major metropolitan area, which encompasses the incorporated cities of Las Vegas, Henderson, North Las Vegas, Mesquite and Boulder City. Clark County government is unusual in that the environment, while

a county organization, provides services that are equivalent to most big cities. We have the same problems that larger cities do. Crime, infrastructure, and community amenities have all suffered. Current estimates have Clark County at 1.92 million residents, of which 828,000 live in the unincorporated areas (LVCVA, 2007). Clark County continues to grow at a record setting pace. The LVCVA (2007), reports that over 8000 new residents are moving to Clark County each month.

Land use has changed our appearance. Land has become incredibly valuable, and developers are looking for ways to get the most from their money. Housing density has become intense and multiple high-rise condos are dotting the landscape. Hub communities are a new phenomenon. These communities are small cities with amenities of a larger city in one small geographical area. Along with the service demands of an increasing in population, Clark County is home of the famous Las Vegas Strip which assisted in bringing 38.9 million visitors last year (LVCLA, 2007). McCarran International Airport is the fifth busiest airport in North America. It processed 44, million passengers in 2005 or 120,000 each day (McCarran, 2006). Several universities and colleges are in Clark County and it has the fifth largest school district in the nation with 300,000 students attending 326 schools (CCSD, 2007). All of this change has presented difficulty for the Clark County Fire Department (CCFD) to meet its mission and goals. Despite consistent hiring, the CCFD is not gaining ground. The county administration is committed to augment public safety and as such we continue to build fire stations, and add staff. We are however competing with other county services for limited tax dollars for which to expand services. Tax base is also taking a hit. Property values fell mostly due to market correction, which has affected taxable value. Developer agreements are helping, but growth continues to out pace the counties ability to add services.

The CCFD is a relatively young organization, having been established in 1954. The CCFD is an “all hazards” department, providing ISO class 1 rated services to the county residents. An accredited combination department, the CCFD accomplishes its mission 650 suppression, 68 prevention and investigation, and 63 civilian career personnel, staffing 55 companies, and 350 volunteers (in the rural areas) responding from 39 stations strategically located within the county (Ratigan, 2007). The CCFD has long-standing automatic aid agreements with the cities of Las Vegas, North Las Vegas, and Henderson, and responds to over 100,000 calls annually. In the last 10 years, the CCFD has doubled in size. Growth has put a strain in infrastructure services that are essential to a safe and healthy life style. For life safety, the Clark County has an aggressive fire station building program, which adds 1 station each year, and negotiating agreements supplement this commitment

The department has had several incidents of national attention. The MGM fire killed 86 civilians and injured over 700. Less than 3 months later the Hilton fire killed 8. A rocket fuel production plant caught fire in 1988 and the resulting explosion of ammonium perchlorate created a crater 90 feet across, and released several hazardous materials. The Pacific Engineering Production Company of Nevada (PEPCON), site of the explosions, is one of only two free world producers of ammonium perchlorate, an oxidizer used in solid fuel rocket boosters, including those used in the space shuttle and military weapons. This incident killed 2 and injured 327 people including 15 firefighters. Damage was estimated in the millions and was significant. Heavy damage occurred within a 1.5-mile radius, and minor damage extended for a radius of up to 10 miles (Routley, 1988).

In the early morning hours of May 6th 1991, a small leak in a chlorine production facility, developed into a major hazardous materials incident when dried chlorine gas mixed with water creating hydrochloric acid. This acid destroyed the piping system used to transfer the material to

rail card. The leak, estimated at 70 tons, resulted in 200 injuries including a large part of the first alarm assignment and required the relocation of over 2000 citizens Routley, (1991). Flooding in Clark County is not rare, as it is in desert environment; however several floods in the last several years have become major events, causing the loss of several lives and costing millions in property loss (Sutko, 2007; Sutko 1999; Haro, Daley & Runk, 1999).

These significant disasters and other less notable emergencies have challenged the emergency services within Clark County. All of these events had limited geographical exposure, multiple layers of damage and required a large emergency response. While these incidents were handled in a professional and competent way, the potential for a disaster of greater magnitude is present. The Las Vegas valley is a prime target for terrorist and a weapon of mass destruction type event. Despite an aggressive flood control program, we still experience flooding and Nevada ranks third in seismological activity and fifth in monetary loss for earthquakes. Clark County has the potential for a magnitude 6+ earthquake (MJHMP, 2005) Criscione, Werle, Slemmons & Luke (2001) indicate that the area with the greatest liquefaction impact is the area of the Las Vegas strip and the downtown Las Vegas. This area has the highest population density with in the valley.

Effective mitigation of wide spread disaster is reliant on the ability to communicate damage assessments to the Emergency Operations Center (EOC), in order to effectively develop an efficient response to the disaster. Clark County has an extensive vulnerability study to identify what hazards plague the county. It addresses general responsibility for mitigation but little is written regarding the specific responsibilities if its departments during a disaster.

This ARP is part of the requirement for Executive Analysis of Fire Service operations in Emergency Management (EAFSOEM) and is prepared using the Operations Policies and

procedures for Applied Research Guide (Academy, 2005). The project relates to several area of the EAFSOEM curriculum, which outlines the need for interaction from the field to the EOC. It is this interaction, which allows community leaders to effectively respond to these emergencies, and sets the groundwork for assistance at the state and federal levels. This paper relates to the Unites States Fire Administrations (USFA) goals by insuring continuity in the comprehensive multi-hazard risk reduction objectives of the USFA.

Literature Review

Kremer & Bahme (1992) define a disaster in a broad sense, "a disaster is a sudden and extremely unfortunate event that affects many people" (p. 2). Disasters come in many forms and in many sizes. A smaller city may have an incident of disastrous proportions, which will be a fairly routine emergency to larger metropolitan area. Regardless, a community's first line of defense is its emergency services. In rescue situations the fire department usually takes the lead role (Barr & Eversole, 2003; Adams, 2004). This first line of defense is based on jurisdictional need and can vary with each jurisdiction. During a disaster, resource allocation becomes critical. Disaster response is difficult because disasters are different than routine emergencies (Auf der Heide, 1989; Kapucu, 2007). The scope of disaster response is wider and resource requests will be greater. These are compound events requiring diverse resources to mitigate (Crichlow, 1997).

There will not be enough resources to address each request (Adams, 2004; Auf der Heide, 1989). Multiple requests for service will come from several sources and agencies. History has shown that disasters create chaos, and resource coordination becomes awkward and hasty, resulting in the inability to achieve response goals (Dippel, 2004). Events such as the World Trade Center disaster, the Northridge earthquake, Oklahoma City and hurricanes such as Katrina, have placed a new emphasis on disaster planning and recovery (Barr & Eversole, 2003).

It is clear that a mass assault approach to resource management in a disaster will become problematic in its self (Auf der Heide, 1989). Routine call priorities will change, and crews will tend to self-initiate responses. Resources will become scarce partly due to the self-initiation, but also due to multiple citizen reports which usually are inaccurate or unfounded. This occurred in several recent disasters, which indicate the need for formal procedures regarding resource allocation. Without this plan and procedure, critical information may be delayed, and resource accountability is lost. Addressing critical issues may be delayed or neglected because of resource allocation issues.

Advanced planning for recovery provides essential benefits (Drabek & Hoetmer (1991). These are unusual events and have immense complexity (Crichlow, 1997). Planning is essential to establish the responsibilities of each department within the jurisdiction and how they will respond to the situation (Brown, 2005). Brown (2005) indicates that incident commanders will be addressing many issues which will test their decision-making skills. In absents of a specific planning approach, normal operational philosophy engages. Under this overwhelming stress, commanders will rely on intuition do give them guidance (Gasaway, 2007). This intuition or primed recognition decision-making is based on recent and repetitive exposure to situations that are similar to what they are facing. The intuition may lead them in a defective thought process because of the overwhelming nature of disasters. Normal response measures are ineffective and as such may lead to inefficiency and increased mortality.

The issue regarding disaster resource deployment is that traditional models will not apply, and in fact may create additional delays. One of the most controversial aspects of developing and issuing emergency plans is the premise of triaging the scene before committing resources (Strickland, 1998). Collins (2002) emphasizes that emergency actions should not be taken until

the jurisdictional survey is complete. His exceptions to this include immediate life threats and actions to prevent conflagrations. Planning is contingent on realistic assessment of the potential types of disasters in each specific locale, and the emphasis on a worst-case scenario (Barr & Eversole, 2003). Brown (2005) suggests gaining an understanding the response plans and procedures of other key players who may respond to the event.

This process will be politically charged. Influence from the community and its leaders, as well as within the organization will become evident (Gerber, 2003). This political environment may be treacherous, but history has provided the answer: planning, training and practice. Ultimately our response to natural or man-made disasters is dependant on this (Brown, 2005). On major benefit of selective resource allocation during disaster is the initial damage assessment (IDA) The IDA is essential to efficient unit deployment in the initial recovery from a disaster (McEntire & Cope, 2004). The actual needs assessment can be completed until the initial assessment is complete and the situation is fully understood (Strickland, 1998). Key facilities must be evaluated, and their ability to function assessed (Ganz, 1998). Some facilities may have contingency plans to assess their operations. It is essential emergency operations plans address this to prevent duplication of effort in a situation already experiencing a diminished resource capacity.

IDA's start with assessment of the emergency responders and their facilities. Often these faculties incur damage and diminish the ability to respond (Kapucu, 2007). This assessment should be reported to a central collection person, for dissemination to the EOC when it opens. Next assessment of regional infrastructure should occur. Facilities with a high loss of life potential should be high on the assessment list. Giomi (2002) identified that schools and childcare facilities were among the highest concerns for responders. Identification of these

targets areas must be established and routes identified to access the targets for initial assessment. All of the information collected must be forwarded to the proper authority to be used for resource allocation

Recovery from a disaster begins immediately following the event and this mitigation is focused on breaking the disaster cycle (FEMA, 2007). This recovery may take several weeks or months to complete. The first several hours are critical for life safety, and establishing the priorities for recovery (McEntire & Cope, 2004). EOC involvement becomes critical to recovery from a disaster. The EOC is the focal point of operations, most likely multiple operations, as such coordinating information and resources to support operations, in an environment away from the actual scene is valuable (Anderson, Compton & Mason, 2004). Merely opening an EOC is not the solution. This may uncover inadequate resource management issues. The EOC is the master coordination and control point for disaster recovery effort (Drabek & Hoetmer, 1991). The EOC is useless if the information collected cannot be communicated efficiently from the field. It is critical that EOC operative receive rapid and accurate assessment of the situation in order to efficiently allocate resources. Gathering the most timely and valid information available is essential to effective crisis management (Martin, 2007; Doherty, 2001). This damage assessment will play a significant role in the ability to declare the area a disaster and the ability to gain federal disaster funding.

Success or failure of the response to disasters is dependant on the adequacy of communications to the EOC (Ganz 1998; Doherty, 2001). Donovan, (2003), concurs that communication during these events is key to the outcome of the operations. This communication does not alleviate critical decision-making by leaders (Compton & Granito, 2002). Rapid and correct information communicated to these leaders will provide them with the information that is

essential to these decisions. To reduce the potential of lost communication, procedures must be outlined for the information transfer. It is inefficient to have several units contacting the EOC in an attempt to transfer information. Intermediary collection points should be established.

Regular communication methods may not be available and contingency plans must be addressed. Doherty, (2001), suggests the utilization of auxiliary communication resources. These may include communications vans, citizen operators, cell phones, or other agencies. Again planning is key to success. Interoperability issues may be identified prior to them becoming a stumbling block during disaster operations. Communications overload can result in delayed communication and a resultant decrease in responder safety. It also can result in delays to in critical situations.

Modification of standard response plans will become necessary. These modifications should reduce assign resources based on field observation, or credible reports. Incidents of less magnitude and potential will have to wait. This will be a jurisdictional issue, and is dependant upon available resources. In jurisdictions with fewer resources this is an extremely critical issue. These incident often require the use of automatic or mutual aid agreements, however these agencies may have their own issues and may be unable to respond in the normal manor (Auf der Heide, 1989). Outside help may be hours away at best. This adds to the critical nature of resource allocation prioritization during this critical time.

Even the best plans will falter if responders are not properly trained in their implementation. Training becomes key to success of the plan. The problem is that contingency plans are rarely if ever exercised (Martin, 2007). Realistic multi-jurisdictional training provides the opportunity to find any faults within the plan and to operate in the environment and conditions that may be expected. Realistic training operations are usually limited to a few hours, but realistically these

operations can take several days. Training does not stop with the responders. Primary Service Access Point operators and dispatchers must be trained and participate in the exercises also. These events incur a large burden on these individuals.

Effective and resourceful response is predicated on having a good response plan, understanding that plan and practicing it regularly. Repetitive exposure enhances the primed-recognition response so when the event occurs this plan will be implemented efficiently and with a reduction in responder error.

Preparing the community is also an essential step to mitigation of the event, and supports effective resource management. Many issues arise because of un-informed civilians with good intentions. Providing the community with disaster preparedness information will reduce the potential of injury and death, but will also reduce the potential of receiving inaccurate requests for service during a disaster. Many communities have formed response teams to augment resources in disaster events. This allows critical resources to be re-allocated to more critical operations in the mitigation phase of the disaster.

Disasters are stressful situations for the citizens, the responders, and the government. The literature supports the need for effective programs focused to address actions of the first responders, to reduce the confusion, insure efficiency, and begin the recovery process. These programs must include the responder's responsibilities, regardless of what governmental organization is responding. These guided operations insure accountability, and reduce freelancing, which is potentially deadly for rescue workers

Procedures

This research project utilized the descriptive research method to: (a) gain an understanding of how initial damage assessment and resource deployment benefit communities in the wake of a

natural or man-made disaster, (b) how do other agencies identify specific “high risk” vulnerabilities within their individual response districts, (c) what procedures do other agencies use to conduct initial damage assessments after a disaster on order to efficiently deploy resources to the emergency and (d) what are the “high risk” vulnerabilities in Clark County and how are they addressed. The procedures utilized in the research project included a literature review, gaining feedback from fire departments in selected areas, obtaining feedback from Clark County Fire Department Officer and interviews with key individuals within the county organization.

The literature review for this ARP was initiated in September of 2007 at the LRC of the National Fire Academy. The Internet was utilized to gain information on past ARP’s that related to the subject. The author also used his personal library of journals and literature. The literature review provided an extensive understanding of the need for resource management in the initial hours after a disaster, and the need for information compilations and dissemination for effective disaster management.

A feedback instrument, entitled “*Disaster Vulnerability Policy Feed Back Instrument*” (Appendix C) along with the cover letter (Appendix B) was sent to 16 specific locations (Appendix G). In an effort to expand the research the instrument was placed on the NSEFO website during November of 2007. This instrument was designed to answer the questions specific to the utilization of mitigations plans and vulnerability studies. An additional feedback instrument entitled “*Disaster Response Actions Feed Back Instrument*” was sent to 112 Battalion Chiefs and Captains (Appendix E) along with a cover letter (Appendix D) during November of 2007. This questionnaire was developed to determine the familiarity of the field officers with initial actions in a post disaster scenario.

An interview was conducted with the Clark County Emergency Manager asking several questions (Appendix A) to determine the exact functions the Clark County Fire Department has during potential vulnerabilities identified in the MJHMP. The interview also addressed the need of and responsibility for initial damage assessments in the initial operations post disaster. E-mail correspondence further assisted in this process.

Correspondence with the Las Vegas Metropolitan Police (LVMPD), Las Vegas Valley Water District (LVVWD), Clark County Real Property Management (RPM), confirmed that they have no responsibility for damage assessment or reporting. Request for information for the Department of public works went unanswered. LVMPD reports that their main function is that of maintaining order and peace, and controlling riots (S. Menger, personal communication, December 18, 2007). The LVVWD has an extensive emergency plan which addresses specific threats to the water supply and its infrastructure. The plan addresses specific incidents and how the district can mitigate them. (R. Buhner, personal communication, December 4, 2007). RPM confirmed that they have no specific plan for disaster damage assessment (M. Green, personal communication, November, 30, 2007)

Limitations

There is an inherent limitation with any feedback instrument. The “*Disaster Vulnerability Policy Feed Back Instrument*” was sent to a small sample of departments strategically picked by three regions. The rate of return was 8 of the 16 sent to specific respondents and 14 overall. Many of the instruments not specifically addressed to recipient’s represented areas this research intended to assess. Returns were less than expected, but the results did provide adequate information to answer research questions. Great effort was utilized to keep departments

demographically diverse and representative, however the uniqueness of the CCFD operation was difficult to reproduce.

The “*Disaster Response Actions Feed Back Instrument*” provided better returns. Of the 112 instruments sent, 25 were returned. This was less than expected, however a sound basis for assessment can be drawn. One limitation to the instrument was fixed responses. Some respondents may not choose one of the given options leaving them to select a choice that not may be their preference.

Definition of Terms

ARP – Applied Research Project.

Battalion Chief – A field officer who supervises several captains.

Captain – A field officer who supervises a single company

LRC – Learning Resource Center

MJHMP – Multi Jurisdictional Hazard Mitigation Plan

NSEFO – National Society of Executive Fire Officers

Results

Feedback Instruments

The data was collected from both of the surveys and compiled for use. The “*Disaster Vulnerability Policy Feed Back Instrument*” provided insight as to how other department address information gathering respond to disasters.

Figure 1 presents information on mitigation programs. 71.4 percent of the departments identified the existence of hazard mitigation programs. Of those identifying programs, 70.0 percent have a SOP directing operations during a disaster. Figure 1 also depicts that the departments responding that they have an SOP, that the SOP also included an IDA procedure.

Only 28.5 percent were automatically initiated. Not unexpected, 71.4 percent of the respondents indicated that the preferred method of reporting station and crew status was via the chain of command.

Addressing specific targets that have increased vulnerability, figure 2 presents what respondents indicated were priority targets. Fire stations, utility facilities, schools and bridges were most often identified, 85.5 percent, with HAZMAT facilities coming in second at 60 percent. An unanticipated finding was that of Mobile Home Parks. This was the least addressed vulnerability with 28.5 percent indicating this as a target. This is concerning based on the susceptibility of this facilities to weather related disasters, and number of this type of facility in areas prone to this weather related potential.

An unanticipated finding was the department for conducting the vulnerability study, 75 percent indicated that the fire department is responsible for the vulnerability study. This result may be due to respondents coming from mid-size and smaller communities, who incorporate the emergency management functions within the department. Larger communities, like Clark County have separate emergency management departments. The plans were evenly split whether the plan addressed specific targets, or the plan being general in nature as noted in figure 3.

When evaluating the departments' first priority; that being addressing the ability to respond after a disaster, figure 4 indicates that 42.9 percent of the departments responding have a formal SOP for assessing station capability post disaster. In this assessment, station status as well as personnel status was evaluated. All responding department indicate that they address personnel status; however 83.3 percent address stations status specifically.

This information is reported to the Battalion Chief 80 percent of the time, with the rest reporting to their dispatch. The remainder of the feedback evaluated dispatch policy, and

whether normal policies were suspended during a disaster. The majority 64.3 percent indicated that normal dispatch operations continued although the margin was close.

Since the CCFD has no procedure or guide for initial operations during a disaster, the evaluation of the *“Disaster Response Actions Feed Back Instrument”* provided an insight into the mindset of field officer facing disaster scenarios. The first area assessed was the initial priorities after the disaster. Respondents were given six options to choose: assessing damage to your response area; obtaining a crew personnel accountability report; preparing for multiple dispatches; evaluating the status of the station; assessing the well being of your family; and stocking extra supplies/prepare for dispatch. Each respondent was asked to select the first, second, and third priorities. Figure 5 indicates the responses to the first priority. 68 percent indicate obtaining crew personnel accountability report (PAR) was their first priority. Assessing family followed this as the second highest response. Figure 6 indicates the responses to the second priority with station status being the highest second priority and crew PAR following. Figure 7 indicates the responses to the third priority, which was fairly even among assessing damage to your response area, preparing for multiple dispatches, and stocking extra supplies/prepare for dispatch. Responses were right in line with what would be expected for initial disaster assessment. Clearly figure 5 indicates a concern for personnel as figure 6 does for the station. The results for the third priority indicate some confusion as to what is appropriate.

The instrument next evaluated respondent’s actions when encountering a damaged structure. Options were given included: stop and commit to the structure; stop and check the structure for injured civilians; stop and conduct a rapid assessment; then continue; and drive by and continue the assessment. The instrument, as illustrated in figure 8 indicates that the greater part, 68 percent of the respondents would stop make a rapid assessment and continue. Despite the lack of

policy on this issue, respondents chose an appropriate action response. Figure 9 shows the results of a similar question assessing the actions of respondents to a dispatch request for response to a collapsed school. Again the respondents choose reasonable actions as 60 percent indicated that would stop the IDA and respond to the structure.

Additional feedback assessed familiarity resource allocation delays, general disaster knowledge assessment, and awareness if identified vulnerabilities in Clark County. Slightly more than half, 56 percent indicated that they were familiar with “windshield surveys” (IDA), and 100 percent of the respondents indicated that they a plan for action in the face of disaster despite the lack of policy or guidance. Results were varied on understanding the potential for earthquake, accurate on the flooding issue and precise on terrorism potential. Comfort level was assessed for conducting damage assessment on six specific targets: commercial structure, overpass, school, high-rise, hospital and fire station. The scale available was; None (No damage), Minor (Cosmetic damage, building still functional), Moderate (Will require major repair, limited function), Severe (Damaged beyond repair, not functional) and Collapsed (Destroyed). Figure 10 presents the results, which indicate comfort with commercial structures, school, and fire stations. There is less comfort with high-rises, hospitals and overpasses.

Finally the assessment evaluated fire station concerns specifically. The first three concerns were evaluated and the options included: structural; gas leak; egress, fire, communications, and other. Results indicate the primary concern regarding the fire stations vulnerability was structural or gas leaks, second was structural or communications, and the third concern was other issues.

The feedback instruments provided the answers to the research concerns listed and provided insight into the issues addressed.

Interviews

An interview was conducted with the Clark County Emergency Manager Jim O'Brien, which assessed specific areas of research regarding the subject of this ARP. Appendix A lists the specific questions posed to Mr. O'Brien.

Questions one through five, seven and thirteen had similar general responses indicating there are not specific procedures, goals or duties for the CCFD or any other county departments in this arena. Specifically, departments are responsible for making their own procedures specific to the duties outlined in the MJHMP.

Question six's response indicated that the CCFD's first goal post disaster is a self assessment of the ability to respond to a disaster. This ability includes personnel, facilities and equipment. The department must also have the capability to address additional staffing and response status for the next several hours, to include off duty augmentation if needed.

Question eight elicited a general response, which again left the responsibility to each department. Specifically it was up to each department head to determine what procedures that they would utilize to accomplish the responsibilities under the MJHMP. One aspect that the MJHMP plan does not specifically address is freeways and other jurisdictional responsibilities of the State of Nevada, and the Nevada Department of Transportation. He did indicate that there are pre-arranged response agreements which allow cross jurisdictional responses. Further should the county manager decide to declare a disaster, normal purchasing procedures are suspended, allowing more discretion in service acquisition.

Question nine assessed the drill aspect of preparation. Several exercises have addressed mass casualty scenarios, and a pending table top will address operations four hours into

the operation. This exercise will be a virtual EOC simulating a delay in getting key players together for a period of time.

Question ten was addressed in three phases. Phase one the EOC is not truly activated and most functions are coordinated from the key offices. This is for small incidents which require multi departmental coordination, but will not overload normal operations. Phase two has a limited activation and is initiated by county security officers, who implement the transformation of the county employee development offices to the EOC. This operation is usually complete prior to arrival of the key players. Phase three is the full activation and requires coordination of several county offices (elections for computers, IT for technology support and security). This process takes three to four hours to complete depending on time of day of the activation. He also indicated that early warning of potential issues, begins the activation process early, but the EOC does not become staffed. In addressing question eleven, the concern was getting conflicting information for several EOC's. The EOC's coordinate information with several agencies via WEB EOC, a web based program that allows real-time input from multiple terminals and compiles that data for decision-making.

Question eleven indicated that each jurisdiction handles it own issues, which may induce resource issues. If WEB EOC is utilized, coordination will be better however service requests will still require coordination through each EOC.

When answering Question s twelve and fourteen he indicated that radios are forbidden in the EOC as he felt that they created confusion uncoordinated departmental response. Information is received in the EOC via Telephone, Cell Phone, or WEB EOC. He stated the he preferred WEB EOC as the information was real-time and departmental response was better communicated and coordinated.

The interview concluded that the EOC has two main functions, data collection and priority development, and that of information dissemination to the public. He further indicated that the public must be aware that there will be a delay in restoring essential services and that the public may be without these services for several days.

Summary of Surveys and Interviews

How does initial damage assessment and resource deployment benefit communities in the wake of a natural or man-made disaster? The interview with the Clark County emergency Manager reinforced the literature in establishing the need for adequate damage assessment in the initial response to a disaster scenario. In the face of a disaster, several emergencies may occur. Resources will be scarce as service demands multiply, and normal operations become incredibly complex. Normal resource allocations will not allow for effective mitigation effort. To provide essential service affecting the most good response priorities will need to be established. Some service requests may be abandoned or severely delayed. This coordination is usually accomplished from an emergency operations center or command area that is remote from actual scenes.

Prioritizing service needs requires field information gathering regarding the condition of the community. The research provided insight as to how departments respond to disaster operations. Half of the departments who responded indicate that they conduct this IDA's and have procedures in place to guide them in this goal. It substantiates research conducted by others (Dippel 2004, Coleman, 2002; Ganz, 1998). Initial assessments must be of the emergency response capability, including personnel, equipment and facilities. This information must then be forwarded to the coordination facility so that the priorities can be established. Once the information is received and compiled, a regional picture is achieved, and resources can be

allocated based on actual need. Effective data collection, dissemination is an essential factor in establishing priorities to begin mitigation of the disaster and establish the foundation for community recovery.

How do other agencies identify specific “high risk” vulnerabilities within their individual response districts? The research indicates that the 71.4 percent of departments establish specific vulnerabilities within their organizations. That further indicate each department has identified specific targets common to all communities that are at risk. High among these target identified were schools, identified 85.7 percent by respondents, which poses a psychological loss as well as a life loss potential. What is unclear if other identified targets are based on potential of loss of life, loss to infrastructure, or loss to community, or a combination of a combination of each? Regardless targets are common to each community. Each community is unique not because of the target types, but the quantity of the targets, and the uniqueness of each individual target. These must be addressed individually. Planning seems to be neutral, as the research indicates an even split from general vulnerability planning which identifies specific targets.

What procedures do other agencies use to conduct initial damage assessments after a disaster on order to efficiently deploy resources to the emergency? Half of the department providing research indicates that they accomplish the initial damage assessment. Clearly automatic response to this situation would provide the fastest response and information gathering. The research indicated that this occurs automatically in 28.5 percent of the time. The research also indicated that many of the automatic responses come from departments in the west region. The central region is prominent with officer ordered response, as was the east coast. What the research did not find is why these trends occur.

There are a variety of factors that influence the ability to conduct IDAs. Each region has specific vulnerabilities that are common to that region but uncommon to the others. Department culture may play a role. Generally fire departments have a culture that is unique to the fire service in general, but individual influence alters the culture giving it unique properties. Political influence from within the organization may have influence over the ability to initiate this activity. It may be a real or perceived accountability issue. Regardless, during a disaster, procedures need to be implemented rapidly and the plan followed.

What are the “high risk” vulnerabilities in Clark County and how are they addressed? The interviews and e-mails indicate no specific identified targets are addressed. The MJHMP identified general locations. The potential for damage from identified vulnerabilities was categorized for each region. For regions in the jurisdiction of the CCFD, the strip corridor is the greatest risk. Earthquake, liquefaction potential is highest along the strip corridor and areas adjacent. Nevada is seismically active, and has numerous faults both active and inactive underneath its ground or adjacent to the region. Numerous multi-story hotels and condominiums are in this region. The MJHMP has unspecific targets listed as lifeline utilities and seismically deficient buildings.

Local flooding occurs here also as a major flood control channel flows under the strip. Because Clark County is a desert location the ability of the ground to absorb water is inhibited. Runoff occurs regularly during rainstorms, and despite aggressive flood control, flooding still occurs. Generally the populated rural areas are at highest risk. These areas are developed for habitation, but flood control infrastructure is minimal or non-existent, having been focused in the metro area, which has the highest loss potential.

Epidemic potential has no specific region, limited to the exposure migration potential of the residents and visitors. The transient population along the strip is routinely in the 100,000 censuses, and can triple that for special events. These transients come from all area of the world, and are here for short intervals. Should this vulnerability materialize it will be a regional issue, and may be difficult to trace.

There are no specific plans noted to address the vulnerabilities listed. They have been identified and the potential for occurrence evaluated.

Discussion

Responding to disaster scenario transgresses into a totally different emergency response field where traditional models that function day to day are rendered troublesome. Proper mitigation is dependant on several factors all of which work together to formulate strategies for recovery from disasters. Developing a plan requires identification of potential threats to the community. This vulnerability study addresses specific events that can place a community in peril. This plan must also address areas or regions that are at risk. Specific at risk targets may then be identified and planed for. The response plan must address which agency is responsible for information collection, which targets will have internal staff to conduct assessments, and how the assessments are reported to the data collection field agency. This process is useless if the personnel who must utilize the plan are not trained on it. Responders must be familiar with the plan and the procedures for collecting data. It must be practiced. Training in the plan once and then placing on the shelf will render it ineffective. This procedure sets the foundation for rapid and efficient resource management during disaster operations. The vulnerability surveys indicate provide acknowledgement that this process in effect. Generally the process is placed on the fire department for these operations. Bushnell (2002) also has similar results from his survey,

validating the information. This sets the foundation for the purpose of this research that of resource management. Collection of information is incumbent information transfer to the authority that is tasked with resource management. Incorrect or erroneous information can result in poor allocation of resources delay in placing resources in assignment, which may be critical. This information is enhanced if interoperability among agencies is evaluated and contingency plans developed. As with other plans the responders must be trained and the plan practiced regularly. The last factor in resource allocation is the individual who is tasked with resource allocation responsibilities. Plans training and practice are the keys for effective mitigation.

The feedback from the CCFD indicates that despite no formal plan for responding to disaster scenarios, most of the officers already have an adequate knowledge in initial operations when facing these unusual responses. Initial priorities are inline with published literature, and actions validated thru history were correctly selected as initial operating practices. The majority of department respondents recognize that resources requested during disaster operations will be delayed, 60 percent indicating a delay 10 to 30 minutes, 16 percent identifying additional resources may be non-existent. These results, although limited, present a positive view of the CCFD's ability to respond during surreal crisis. The results are not without fault however. This research instrument addresses situations not experienced by many of the respondents. Having to deal with actual situations, in actual conditions places extreme stress on decision-making abilities. Decisions under crisis revert to a prime recognition response which s based on experiences. Because of this processing ability learning and practicing the plan is essential. Should a responder revert back to normal operations resource allocation may be jeopardized and overall mitigation delayed.

The lack of specific procedure for action, when facing these incidents is potentially disabling to the community. The MJHMP addresses specific vulnerabilities, plans to reduce the community injury from these vulnerabilities, and generally determines who is responsible for dealing with general aspects of the response. It does not address specifics as to who conducts initial damage assessments, how they are reported to what method and procedure we utilize to gather, process, and disseminate that information. Each of these specifics is a key component in resource allocation. Historical data imprints the pitfalls of duplication of effort, loss of accountability and poor resource allocation.

Recommendations

Research indicates that the CCFD is not immune to disaster, and in fact the potential for a major event is very real. History has indicated that flooding threat is real; research into the earthquake potential is substantiated, indicating the potential for magnitude 6+ earthquakes; and Clark County has the very real potential for a terrorist action resulting in loss of life property and prosperity. Clark County's MJHMP addresses specific vulnerabilities providing the background for the department to establish a policy and procedures for responding to such disasters. The MJHMP does not address specific initial actions of the CCFD personnel or for other county departments during a disaster. The internal feedback identified potential inconsistencies in what CCFD officer's priorities are when facing this type of crisis. Based on the literature review and the assessment result the following recommendations are suggested.

- Clark County should identify specific responsibilities for department within the organization. The MJHMP lists general responsibilities, but fails to assign specific goals for damage assessment or accomplishments for each department.

- The CCFD should establish a SOP to address the initial priorities for ensuring personnel and apparatus are available to respond to begin the mitigations process when facing a large-scale disaster. This should include a status report the personnel, the apparatus and the facility. It should also include the procedure for reporting this information to the Battalion Chief as a collection point for each battalion, for dissemination to dispatch and chief of suppression. This will be communicated to the EOC when is it activated. WEB EOC can be utilized for this process.
- Access to WEB EOC should be granted to each battalion chief, along with training in its use and operation. Should a large scale disaster occur, battalion chief can assume branches based on battalion boundaries, and coordinate requests directly via WEB EOC.
- The CCFD should develop a SOP for rapid IDA for targets assigned for evaluation. This should include the routes, specific target vulnerabilities, and a method for categorizations of those targets. This should address procedures for terminating or deviating from this assessment in order to avoid self-dispatching, and duplication of services and to ensure accountability.
- The CCFD should establish a SOP, which addresses the identification of priorities for evaluation within each stations response areas. This should identify which facilities have internal assessment procedures to avoid duplication and the method of reporting the results of the assessment for complication. This also should include guideline for periodic updates of the district priorities.
- The CCFD training division should develop training regarding the priorities mentioned above, to include initial and ongoing education, as well as a periodic multi company drill aimed at practicing these procedures.
- The CCFD should develop a SOP for emergency reporting and recall procedures post incident. This may identify who will respond and where, what time lines are expected, how

family members are accounted for how their safety is addressed. This must also indicate who initiates the procedure.

- The CCFD should develop a policy for addressing the safety and welfare of on-duty crew's family members, who will not have their significant other available to assist them in this crisis.
- The CCFD along with other members of the inter-local dispatching group should review these SOPs to develop a policy for the communications office for modification of the standards of coverage response plan during this type of incident. This will ensure resources are placed where needed and that unconfirmed large unit responses do not unnecessarily deplete resources.

The CCFD has responded to several large disasters, and despite a lack of policy for guidance, managed to mitigate these issues. This may be due to the narrow geographic area that these events covered. Should a large-scale, wide area disaster occur, this might not be the case.

Developing these procedures provides the support of effective resource allocation by avoiding duplication of services, insures accountability of the resources, provides guidance to crews regarding what to do, what are the priorities, and how to initiate the mitigation effort, and assists in the effort to speed survival and recovery from such an event.

Future research needs to be conducted to determine the best method of conducting the IDA's and which departments have the best capability to assess such vulnerabilities. A review of past wide spread disasters may be valuable to address the effectiveness of established procedures, and to discover any potential issues based on that experience. Research should also include how other departments train in these procedures. Differentiation of departments that have the emergency management functions within the department may be of value.

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Appendix A

**Questions for Jim O'Brien, Manager
Clark County Emergency Management**

1. The Clark County Multi-Jurisdictional Hazard Mitigation Plan Vulnerability assessment identified 6 areas of major concern for Clark County Residents. In regard to mitigation efforts. What role does the DEM feel the CCFD plays in responding to these areas?
 - a. Drought:
 - b. Earthquake:
 - c. Epidemic:
 - d. Flood/Flash Flood:
 - e. Wild Fire:
2. Four of the major areas of concern involve the CCFD as initial responders to the emergency (Flood/Flash Flood, Earthquake, and Wildfire). What role does the CCFD play in assessing post incident damage assessment?
3. The MJHMP indicates that the Las Vegas Valley is seismically active. Should an earthquake occur, who is responsible for damage assessment in the initial phase post incident, and how does that information get to the EOC?
4. The MJHMP indicates that the Las Vegas Valley is prone to flooding. While great effort has been put into developing flood control, should a flood occur, who is responsible for damage assessment in the initial phase post incident, and how does that information get to the EOC?
5. The MJHMP indicates that the Las Vegas Valley has areas that are identified as extreme risk for wildfire. Should a wildfire occur, who is responsible for damage assessment in the initial phase post incident, and how does that information get to the EOC?

6. Information gathering in the immediately post event sets the basis for response to initial mitigation of such events. What role do you see for the CCFD in such information gathering?
7. What other county departments have roles in this effort and what are they?
8. Do you feel that a procedure should be developed to pre-determine what each department responsibility is (assuming there is not one now) in response to these potential events?
9. Clark County has several drills to prepare for dealing with mass casualty. Does the County have drills to prepare for initial operations during a disaster such as an earthquake, involving the EOC, Response from county departments, information gathering and resource allocation?
10. Once a notification for activation of the EOC occurs, how long does it take to become fully activated? Is this practiced? How often?
11. In a valley wide emergency, with multiple EOC in operation, who takes the lead in disaster operations?
12. As a disaster unfolds, EOC's need information (assessments) of what is occurring in order to manage resources effectively and efficiently. What information is critical for the EOC to obtain for this purpose?
13. Who is responsible for the damage assessments of:
 - a. Schools
 - b. Hospitals
 - c. College dorms
 - d. Hazardous materials facilities
 - e. Rail yards
 - f. Power generations plants
 - g. Roads/highways
 - h. Water and sewer facilities
 - i. Fire stations
 - j. Jails/prisons
14. How is this information relayed and compiled?

Appendix B

Dear Fire Service Professional,

I am requesting your participation in a research project for the Executive Fire Officers Program. I am compiling an Applied Research Project, on resource management during a disaster and would appreciate your time in completing this feed back instrument.

Dear Fire Service Professional,

I am requesting your participation in a research project for the Executive Fire Officers Program. I am compiling an Applied Research Project, on resource management during a disaster and would appreciate your time in completing this feedback instrument.

Please take a few minutes and complete the feedback instrument. To complete the feedback instrument you should take the following steps:

1. Hit forward on the email
2. Open the attachment
3. Complete the feedback instrument
4. SAVE IT
5. Send it to kmorgan@co.clark.nv.us

Thank you in advance for your cooperation.

If you are interested in the results, include an e-mail address in the space provided on the feed back instrument. I will be happy to forward the results to you.

Thank you in advance for your cooperation.

If you are interested in the results, include an e-mail address in the space provided on the feed back instrument. I will be happy to forward the results to you.

Sincerely,

Kenneth E. Morgan. MPA, NREMT-P
Battalion Chief
Clark County Fire Department
575 E. Flamingo Road
Las Vegas, NV 89119
kmorgan@co.clark.nv.us

Appendix C

DISASTER VULNERABILITY POLICY FEED BACK INSTRUMENT

Please indicate the correct statements by checking the box, filling in the answer, or selecting the appropriate selection from the menu.

Department Name:

Contact Information (Optional): Name:

Address:

City:

State/Zip:

Phone:

☐ Our department has an established Hazard Mitigation Plan?

☐ Our department has a SOP/SOG for operations under the plan?

☐ Our department conducts “Windshield Surveys” (IDA’s) after a disaster?

☐ This response is automatic. ☐ At the discretion of the OIC.

How is this information reported? Company to BC to EOC (Click on box for options)

What targets are identified in your windshield survey?

- ☐ Schools, ☐ Hotels, ☐ Hospitals, ☐ Jails/Prisons,
☐ Hazmat, Facilities, ☐ Roads, ☐ Bridges, ☐ Mobile Home Parks,
☐ Utility Facilities, ☐ Department facilities,
☐ Other (Please Specify)

☐ Our department has a vulnerability survey.

Who conducts the vulnerability survey? Our department (Click on box for options)

☐ This plan is a general vulnerability study, and does not address specific target vulnerabilities

☐ This plan addresses specific target vulnerabilities with in the potential disaster area.

Who Identifies the Target Vulnerability? Each Company (Click on box for options)

☐ Our department has an established SOP/SOG for assessing department status after a disaster.

This includes: ☐ On duty personnel accountability

☐ Station Status Evaluation

☐ Reporting Procedure

To whom do they report?

Dispatch (Click on box for options)

☐ Our department has a policy for off duty personnel to report to duty following a disaster. This policy is initiated Automatically.

☐ This policy address the off duty member's family prior to reporting to work.

☐ Our department has a policy for insuring the safety of families of on-duty personnel.

☐ Our normal dispatch procedure remains intact during a disaster.

☐ Our normal dispatch procedure is suspended during a disaster.

Alarm assignment is Reduced. (Click on box for options)

Enter and additional comments or information here.

☐ I am interested in the results of this feed back instrument, Please e-mail me the results.
Please type in your e-mail address here.

Thank You

Appendix D

Dear Fire Service Professional,

I am requesting your participation in a research project for the Executive Fire Officers Program. I am compiling an Applied Research Project, on resource management during a disaster and would appreciate your time in completing this feed back instrument.

Please take a few minutes and complete the feed back instrument. To complete the feed back instrument you should take the following steps:

1. Hit forward on the email
2. Select "To" and enter Kenneth Morgan and select "TO at the bottom
3. Open the attachment
4. Complete the feedback instrument
5. SAVE IT
6. Select send!

Thank you in advance for your cooperation.

Sincerely,

Kenneth E. Morgan. MPA, NREMT-P
Battalion Chief
Clark County Fire Department
575 E. Flamingo Road
Las Vegas, NV 89119
kmorgan@co.clark.nv.us

Appendix E

DISASTER RESPONSE ACTIONS FEEDBACK INSTRUMENT

Please indicate the correct statements by checking the box, filling in the answer, or selecting the appropriate selection from the menu.

Please indicate the number of years you have been a company officer:

Scenario: The valley has just experienced a wide spread disaster. You are in your station it is and now have to decide the following: (Click on the box for responses)

What is the first priority? Obtaining a crew PAR

What is the Second priority? Evaluating the status of the station

What is the Third priority? Assessing damage in your response area

The area around your station has suffered moderate damage during this disaster. You have been instructed to drive your response district to evaluate the damage. As you start out, you come across a small strip mall that has collapsed near the station.

(Click on the box for responses)

What is your initial action? Stop, conduct a rapid assesment, then continue

As you gather information about your response area, you are called by dispatch to respond to a school that was damaged.

You should Stop, Respond, Evaluate, and commit if necessary

You arrive at the structure to find severe damage including partial collapse. You have requested additional resources. Where will they come from? All o fthe above

How much of a delay do you expect for those resources? More than 30 minutes

Please answer the following: (Click on the box for responses)

Are you familiar with the concept of a “Windshield Survey”? Yes

Do you have a plan for your actions following a disaster? Yes

Have you thought about what structures are vulnerable to high loss of life potential within your response area? Yes

Do you regularly carry the unit cell phone with you on your unit? Yes

Do you carry you personal cell phone with you on your unit? Yes

Do you know the potential of an earthquake in the Valley? Yes

How many fault lines are in the Las Vegas Region? 5-10

What is the potential magnitude of an earthquake in the Las Vegas Region? 6-7

What is the potential for a major flood in the Las Vegas Valley? Moderate (flooding is likely)

How vulnerable do you think the Las Vegas valley is to Terrorism? High Risk

Have you considered the potential of responding to an "Oklahoma City" type incident on the strip? Yes Do you feel that this is a realistic vulnerability? Yes

Have you prepared your family for your long term absents (24-36 hour or more) should a major disaster strikes the valley, Yes

Damage assessment

Given the following parameters: None (No damage)

Minor (Cosmetic damage, building still functional)

Moderate (Will require major repair, limited function)

Severe (Damaged beyond repair, not functional)

Collapsed (Destroyed)

Do you feel comfortable in assessing the damage to a commercial structure? Yes

Do you feel comfortable in assessing the damage to an overpass? Yes

Do you feel comfortable in assessing the damage to a school? Yes

Do you feel comfortable in assessing the damage to a high-rise? Yes

Do you feel comfortable in assessing the damage to a hospital? Yes

Do you feel comfortable in assessing the damage to a Fire Station? Yes

In assessing damage to a fire station what is your first concern? Gas Leaks

In assessing damage to a fire station what is your Second concern? Egress

In assessing damage to a fire station what is your Third concern? Structural issues

THANK YOU!

Appendix F

Disaster Vulnerability Policy Feedback Instrument

TOTAL SURVEYS	14	100.00%
Established HMP	10	71.43%
SOPS under plan	7	70.00%
CONDUCTS WINDSHIELD SUR	7	100.00%
Automatically Initiated	2	28.57%
Discretion of the OIC	5	71.43%
REPRTS TO		
Company to BC to EOC	5	71.43%
Company to EOC	0	0.00%
Other	2	28.57%
Targets		
Schools	6	85.71%
Hotels	2	28.57%
Hospitals	3	42.86%
Jails/Prisons	3	42.86%
Hazmat	3	60.00%
Roads	5	71.43%
Bridges	6	85.71%
Mobile Home Parks	2	28.57%
Utility Facilities	6	85.71%
Fire Department Buildings	6	85.71%
Other	1	14.29%
DEPTS W/ STUDY	8	57.14%
CONDUCTED BY		
Fire Dept.	6	75.00%
Law Enforcement		0.00%
Public Works		0.00%
Emergency MGT	2	25.00%
Other		0.00%
PLAN TYPE		
General	4	50.00%
Specific	4	50.00%
DEPTS W/SOP/SOG	6	42.86%
On Duty personnel	6	100.00%
Station Eval	5	83.33%
REPORTING TO	5	

Dispatch	1	20.00%
BC	4	80.00%
EOC		
Other		

REPORTING POLICY

Off Duty	10	71.43%
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DISPATCH POLICY

Normal	9	64.29%
Suspended	5	35.71%

Appendix G

Disaster Response Actions Feedback Instrument

TOTAL SURVEYS	25	112.00
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First Priority

Damage to response area		
Obtaining crew PAR	17	68.00%
Preparing for Multiple Dispatches	3	12.00%
Evaluating the Status of the Station	1	4.00%
Assessing the well being of your family	4	16.00%
Stock Extra Supplies		

Second Priority

Damage to response area		
Obtaining crew PAR	3	12.00%
Preparing for Multiple Dispatches	1	4.00%
Evaluating the Status of the Station	15	60.00%
Assessing the well being of your family	3	12.00%
Stock Extra Supplies	3	12.00%

Third Priority

Damage to response area	9	36.00%
Obtaining crew PAR		0.00%
Preparing for Multiple Dispatches	5	20.00%
Evaluating the Status of the Station	3	12.00%
Assessing the well being of your family	2	8.00%
Stock Extra Supplies	6	24.00%

INITIAL ACTION

Stop and Commit		0.00%
Stop Check if Injuries	5	20.00%
Stop Rapid assess and Continue	17	68.00%
Drive by and continue	3	12.00%

DAMAGED SCHOOL REPORT

Stop assessment and respond	4	16.00%
Inform dispatch that you are assigned	2	8.00%
Stop, Respond, Evaluate and Commit	15	60.00%
Respond Commit Advise	4	16.00%

RESOURCES

Our Dept	
Automatic Aid	
Mutual Aid	
All	25
None	

DELAY

5-10	2	8.00%
10-30	15	60.00%
More than 30	3	12.00%
You are on your own	4	16.00%

GENERAL KNOWLEDGE

Windshield Survey	14	56.00%
Plan for Disaster	23	92.00%
High Loss Structures	15	60.00%
Unit Cell Phone	25	100.00%
Personnel Cell Phone	25	100.00%
Earth Quake	22	88.00%
Fault Lines		
1	2	
1-5	11	
5-10	6	
10+	5	
Earth Quake Potential		
None	1	
1-3	2	
4-5	8	
6-7	7	
7+	7	
Flood Potential		
Poor	1	
Fair	2	
Moderate	7	
Severe	14	
Terrorism		
Not Vulnerable		
Low Risk		
Moderate Risk	6	
High Risk	19	
Oklahoma City		
Potential	25	
Long Term Absents	18	

Damage Assessment		
Commercial Structure	21	84.00%
Overpass	10	40.00%
School	21	84.00%
High-Rise	9	36.00%
Hospital	12	48.00%
Fire Station	23	92.00%
Fire Station First Concern		
Structural	8	
Gas Leaks	6	
Egress	4	
Fire	1	
Communications	4	
Other	2	
Fire Station Second Concern		
Structural	11	
Gas Leaks	3	
Egress	2	
Fire	1	
Communications	5	
Other	2	
Fire Station Third Concern		
Structural	5	
Gas Leaks	4	
Egress	4	
Fire	1	
Communications	7	
Other	4	
Average Officer Experience	9.547619	Years

Appendix H

Department List for Vulnerability Feedback

Western

San Francisco Fire Department
698-2nd Street
San Francisco, CA 94107
(415) 558-3403
FireAdministration@sfgov.org

Los Angeles County Fire Department 5825
Rickenbacker Rd
Los Angeles, CA 90040
(323) 881-2411
info@lacofd.org

Orange County Fire Authority
1 Fire authority Road
Irvine, CA 92602
(714) 573-6200
KrisConcepcion@ocfa.org

Vancouver Fire Department
7110 N.E. 63rd St.
Vancouver, Washington
(360) 892-4323
mike.senchyna@ci.vancouver.wa.us

Seattle Fire Department
301 2nd Avenue South
Seattle, WA 98104
(206) 386-1400
julie.george@seattle.gov

Central

Corpus Christy fire Department
2406 Leopard, Suite #300
Corpus Christy, TX 78408
(361) 862-3932
RLH@cctexas.com

Overland Park Fire Department
9550 W. 95th St
Overland Park, KS 66212
michael.p.casey@opfd.com

Oklahoma City Fire Department
820 NW 5
Oklahoma City, OK 73106
firechief@okc.gov

North Kansas City Fire Department
2010 Howell
N. Kansas City, MO 64116
sjcarpa@nks.org

Sioux Falls Fire Department
2820 Minnesota Ave
Sioux Falls, SD 57105
jsideras@siouxfalls.org

Cleveland Fire Department
1645 Superior Ave.
Cleveland, Ohio 44114
(216) 664-2000
dschroder@city.cleveland.oh.us

Eastern

Miami Fire Department
1151 NW 7th St.
Miami, Florida 33136
(305) 416-5400
fire@ci.miami.fl.us

Miami-Dade Fire Rescue
9300 N.W. 41st Street
Miami, Florida 33178-2414
(786) 331-5000
mdfrd@miamidade.gov

Virginia Beach Fire Department
2400 Courthouse Dr.
Virginia Beach, VA 23456
(757) 385-4228
vbfire@vbgov.com

Gastonia Fire Department
260 N. Myrtle School Road
Gastonia, NC 28052
(704) 866-6814
Thompson_William@cityofgastonia.com

Durham Fire Department
2008 E. Club Blvd.
Durham, NC 27704
(919) 560-4242
daniel.curia@durhamnc.gov

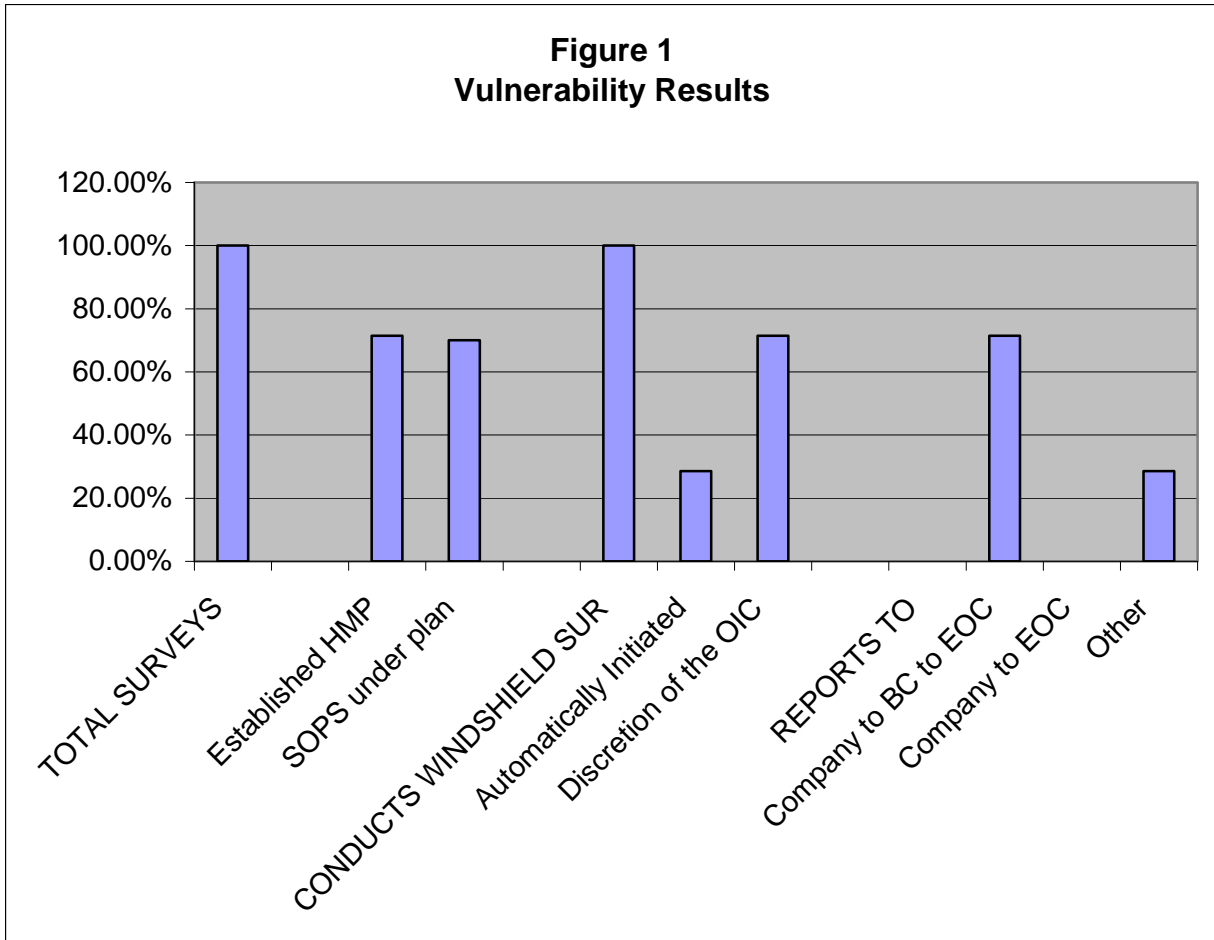
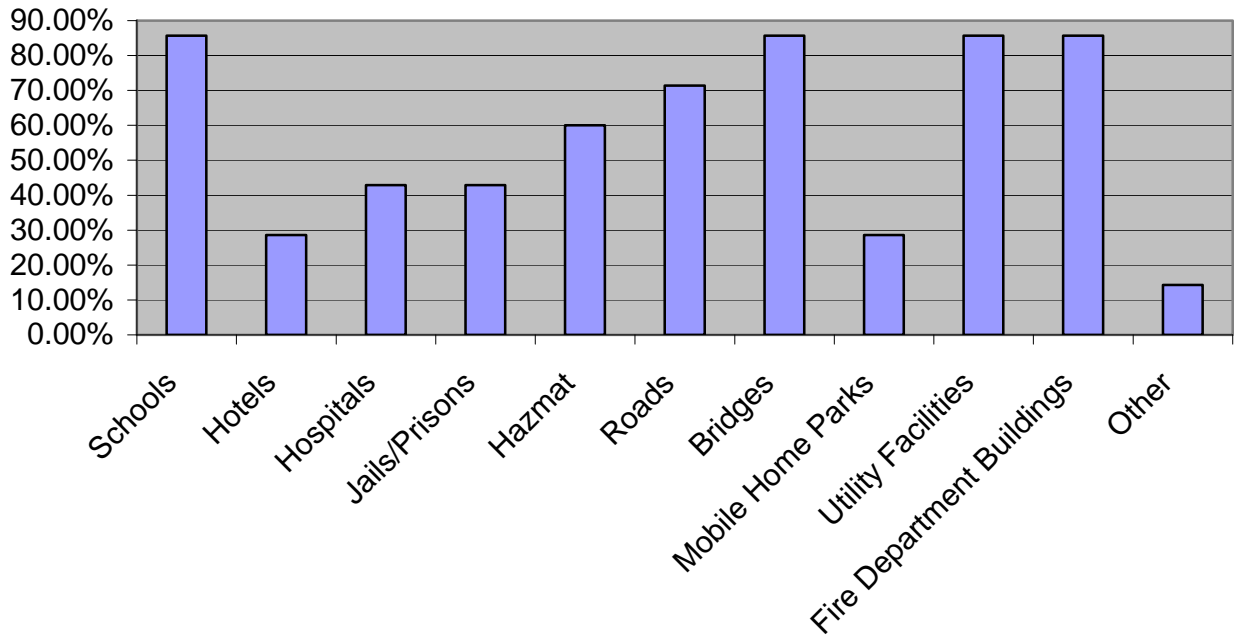


Figure 2
Targets Identified in Windshield Survey



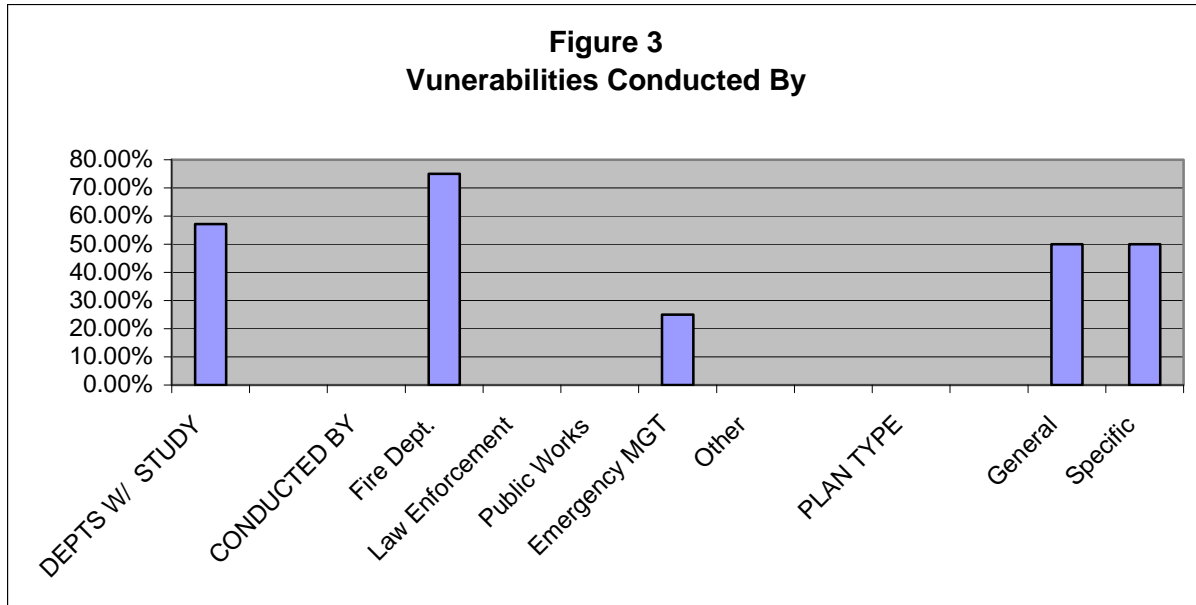
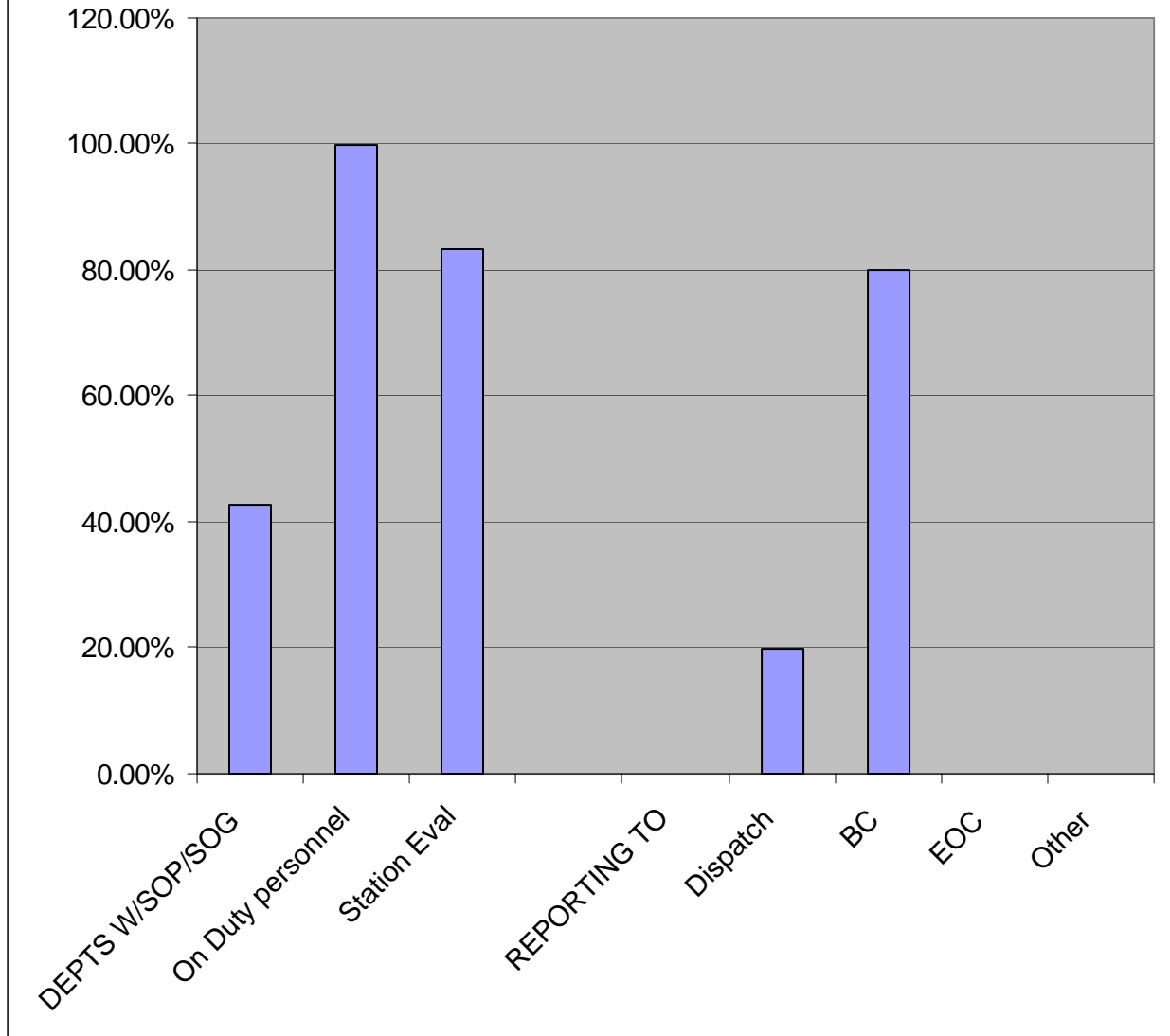


Figure 4
SOP/SOG for Evaluating Station and Personnel Status



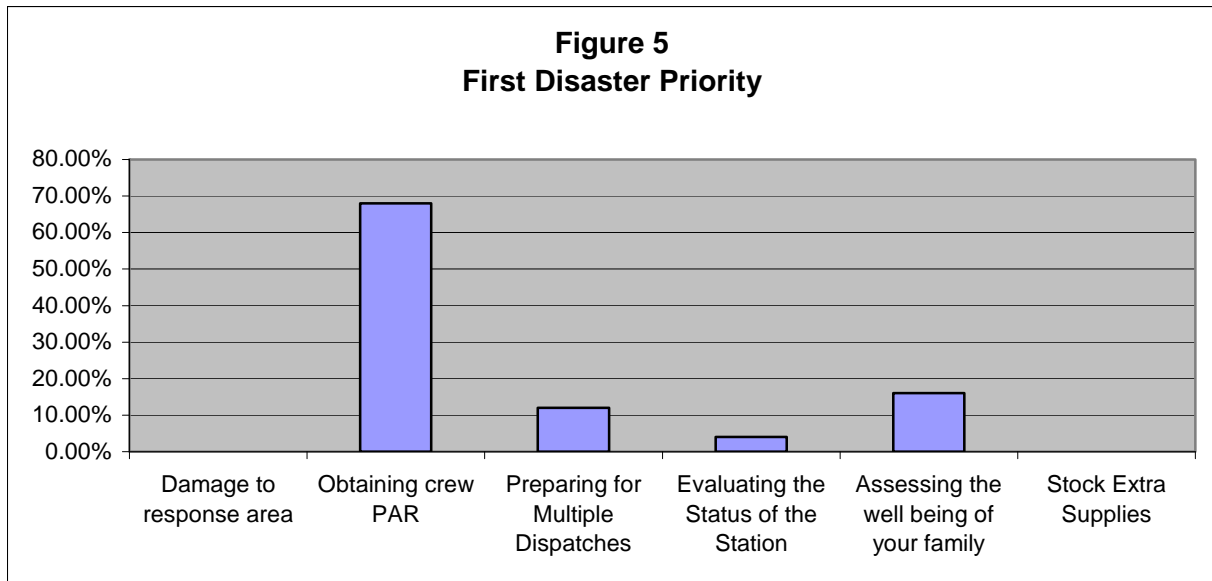


Figure 6
Second Disaster Priority

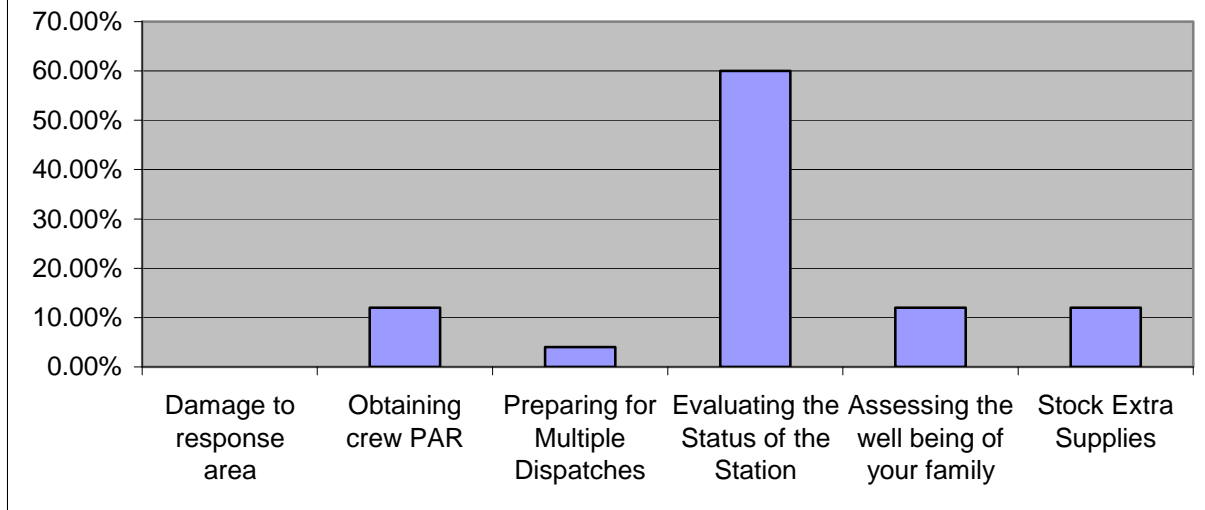


Table 7
Third Disaster Priority

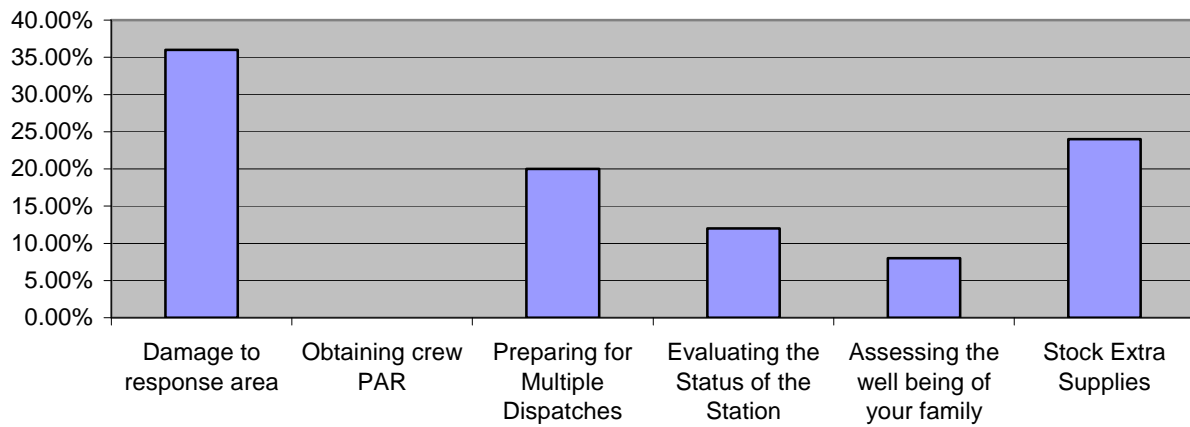


Figure 8
Initial Action to a Discovered Collapse

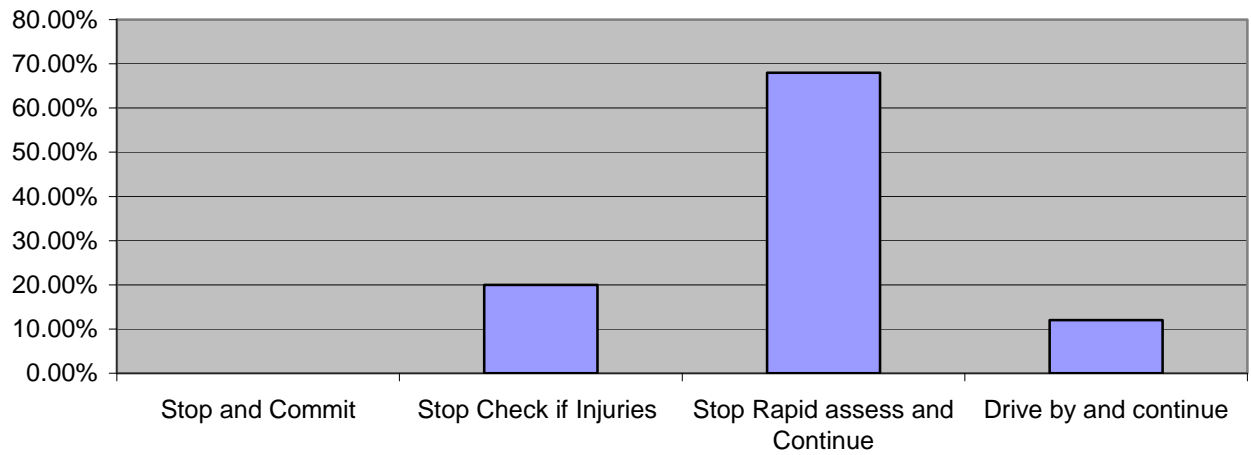


Figure 9
Damaged School Response

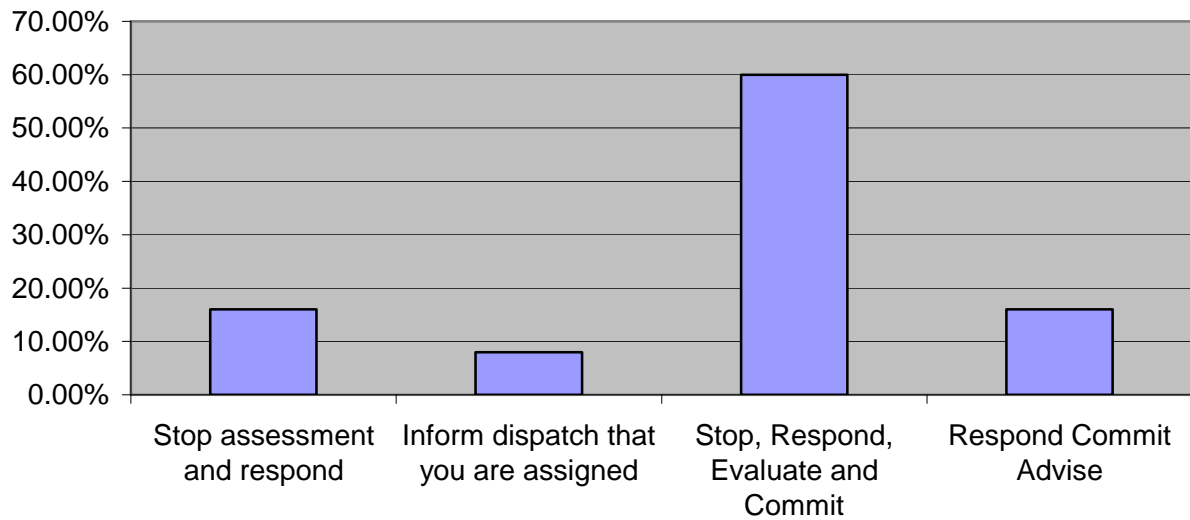


Figure 10
Damage Assessment Comfort

